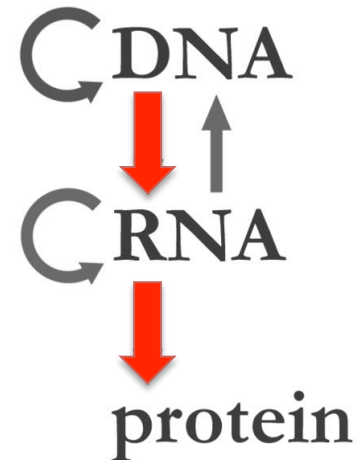


Synthetic Biology
Competition

UCSF 2013

In synthetic biology, DNA coding for a specific product is inserted (transformed) into a laboratory strain of bacteria such as *E. Coli* and then the resulting mRNA and protein can perform a new function in the cells. In doing so, scientists utilize the **Central Dogma** of Biology



Who Are The Players in the **Central Dogma**?

DNA: DNA (deoxyribose nucleic acid) is found in every single organism in the entire world. DNA is crucial in that it contains all of the information that is needed for the organism to function, reproduce, and survive.

mRNA: mRNA (messenger ribose nucleic acid) is similar to DNA, but instead of serving as a storage system for information, it helps transmit the stored information so it can be turned into...

Protein: Proteins are the main workhorse of the cell and performs most of the complex functions that make up an organism (muscle movement, breaking down food, etc).

The Three Players in the Central Dogma

DNA: DNA is the architect that contains the blueprint for a cell.

mRNA: The mRNA acts like a messenger for the architect. As a messenger, the mRNA transport the information from the architect to the construction worker. The architect's blueprints tell the workers what to build!

Protein: As soon as the messenger delivers the blueprint to the workers, they immediately build the protein, which acts as machinery for the cell.

